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Australian Standard™

Dependability management

Part 3.12: Application guide—Integrated logistic support

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PREFACE

This Standard was prepared by the Standards Australia Committee QR-005, Dependability. This Standard is identical with, and has been reproduced from, IEC 60300-3-12:2001, *Dependability management,* Part 3-12: *Application guide – Integrated logistic support*.

'Dependability' is a collective term for performance characteristics (reliability, availability, maintainability) of simple or complex products and systems. The AS IEC 60300 series of dependability management Standards provides general guidelines for establishing a dependability management system to meet most organizational or project needs, supported by a 'tool kit' of non-prescriptive standards on a range of dependability application guidelines and methods.

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number appears on the cover and title page while the International Standard number appears only on the cover.

(b) In the source text 'this part of IEC 60300' should read 'this Australian Standard'.

(c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian Standard*	
IEC		AS IEC	
60300	Dependability management	60300	Dependability management
60300-3-3	Part 3: Application guide—Section 3: Life cycle costing	60300.3.3	Part 3.3: Application guide—Life cycle costing
60300-3-11	Part 3-11: Application guide—Reliability centred maintenance	60300.3.11	Part 3.11: Application guide—Reliability centred maintenance

Only International Standard referenced documents identical to Australian Standards have been listed.

The term 'informative' has been used in this Standard to define the application of the annex to which it applies. An 'informative' annex is only for information and guidance.

CONTENTS

INTRODUCTION

The successful operation of a product in service depends to a large extent upon the effective provision of logistic support in order to achieve and maintain the required levels of performance and customer satisfaction.

Logistic support encompasses the activities and resources required to operate and maintain a product (hardware and software) in service. Logistic support covers maintenance, manpower and personnel, training, spares, technical documentation and packaging handling, storage and transportation, support resources and disposal.

The cost of logistic support is a major contributor to the life cycle cost (LCC) of a product and increasingly customers are making purchase decisions based on life cycle cost rather than initial purchase price alone. Logistic support considerations may therefore have a major impact on product sales by ensuring that the product can be operated and supported at an affordable cost and that all the necessary resources have been provided to fully support the product so that it meets the customer requirements.

Quantification of support costs allows the manufacturer to define the support cost elements and evaluate the warranty implications. This provides the opportunity to reduce risk and allows support costs to be set at competitive rates.

Integrated logistic support (ILS) is a management method by which all the logistic support services required by a customer can be brought together in a structured way and in harmony with a product. In essence, the application of ILS

– ensures that supportability considerations influence the concept and design of a product;
– develops logistic support arrangements that are consistently related to the design and to each other;
– provides the necessary logistic support at the beginning and during customer use and disposal at optimum cost;
– allows improvements in the support of a product throughout its life.

The method by which ILS achieves much of the above is through the application of Logistic Support Analysis (LSA). This is a series of support analysis tasks that are performed iteratively throughout the design process in order to ensure that the product can be supported efficiently in accordance with the requirements of the customer.

The successful application of ILS will result in a number of customer and supplier benefits. These should include, but will not be limited to, some or all of the following:

– meeting customer requirements;
– increased overall customer satisfaction;
– better visibility of support costs;
– lower customer support costs;
– greater product availability;
– fewer product modifications due to supportability deficiencies and hence less supplier rework;

– better adherence to production schedules in process plants through reduced maintenance and better support;
– reduced product LCC;
– lower supplier product costs;
– a better and more saleable product leading to increased product purchases;
– potential for purchase or upgrade of the product sooner through customer savings on support of current product;
– improved safety;
– reduced support costs providing more likelihood of repeat sales.

ILS should be an integral part of the total product design and management process with an on-going improvement activity using monitoring of achieved performance to tailor existing support and influence future design activities.

For many years, ILS was predominantly applied to military procurement, primarily using Military Standard 1388, generated by the US Department of Defense (DoD). Other countries have also produced their own military standards that refer to specialized government infrastructures and these may be unnecessarily complex for commercial application. The methods and benefits of ILS, however, have potential for much wider application in commercial and civilian use.

The idea of ILS is simple and depends on a structured procedure which ensures that the appropriate logistic aspects are considered fully throughout the design and development phases of a product, in close co-operation with the designers. Under an ILS approach the ability to support the product effectively is given equal weight to performance and is fully considered in relation to its cost.

The application of ILS provides improvements in availability, maintenance support and long-term logistic cost savings. Logistic costs are significant through the life of a system and can often amount to many times the initial purchase cost of the system.

This standard is one of a series of application guides that describe various tools in the field of maintenance support under the generic heading of *Dependability management*. ILS is a management technique that can effectively be used to determine the support requirements of a product.

This standard provides guidance on the minimum activities necessary to implement effective ILS for a wide range of commercial suppliers. The standard supplements IEC 60706-4 [1)], which emphasizes the maintenance aspects of the support requirements and refers to other existing standards where appropriate. The use of Reliability and Maintainability (R&M) studies is also mentioned in this standard, as R&M analysis is an important contributor to the ILS process. However, R&M techniques are not described in any detail in this standard and the appropriate IEC standards should be consulted.

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1) IEC 60706-4, *Guide on maintainability of equipment – Part 4: Section 8: Maintenance and maintenance support planning*

AUSTRALIAN STANDARD

Dependability management

Part 3.12:
Application guide—Integrated logistic support

1 Scope

This part of IEC 60300-3 is an application guide intended for use by a wide range of suppliers including large and small companies wishing to offer a competitive and quality product which is optimized for the purchaser and supplier for the complete product life cycle. This standard can be applied to both commercial and military products. It describes the process of ILS, and the various minimal common practices and logistic data analyses that should be undertaken to meet this objective.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60300. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 60300 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60050-191, *International Electrotechnical Vocabulary (IEV) – Chapter 191: Dependability and quality of service*

IEC 60300-3-3*, Dependability management – Part 3: Application guide – Section 3: Life cycle costing*

IEC 60300-3-11, *Dependability management – Part 3-11: Application guide – Reliability centred maintenance*

IEC 60706-2, *Guide on maintainability of equipment – Part 2 – Section 5: Maintainability studies during the design phase*

IEC 60812, *Analysis techniques for system reliability – Procedure for failure mode and effects analysis (FMEA)*

IEC 61160, *Formal design review*

3 Definitions

For the purposes of this part of IEC 60300 the definitions given in IEC 60050-191 apply, together with the following.

3.1
design life
period that the item is expected to meet its performance specification in an agreed environment and level of utilization with the recommended support